

Listing of Claims:

1. (previously presented) A method for classifying at least one audio signal into at least one audio class, the method comprising the steps of:

analyzing said audio signal to extract at least one predetermined audio feature;
performing a frequency analysis on a set of values of said extracted
predetermined audio feature at different time instances resulting in a power spectrum of
said extracted predetermined audio feature;

deriving at least one further audio feature representing a temporal behavior of
said extracted predetermined audio feature by parameterizing said power spectrum,
wherein parameterizing said power spectrum comprises (a) summarizing a frequency
axis of the power spectrum by summing energy within at least one predetermined
frequency band and (b) dividing (b)(i) the summed energy within the at least one
predetermined frequency band by (b)(ii) an average of subsequent values of said
extracted predetermined audio feature to (c) yield a relative modulation depth
representing an amount of envelope modulation in the at least one predetermined
frequency band; and

classifying said audio signal based on said further audio feature.

2. (previously presented) The method as claimed in claim 1, wherein said at least one
predetermined audio feature comprises at least one of the following audio features:

root-mean-square level;
spectral centroid;
bandwidth;
zero-crossing rate;
spectral roll-off frequency;
band energy ratio;
delta spectrum magnitude;

pitch; and
pitch strength.

3. (previously presented) The method as claimed in claim 1, wherein said predetermined audio feature comprises at least one mel-frequency cepstral coefficient.

4. (previously presented) The method as claimed in claim 1, wherein said predetermined audio feature comprises at least one of the psycho-acoustic audio features loudness and sharpness.

5. (previously presented) The method as claimed in claim 1, wherein said deriving step comprises the steps of:

- calculating an average value of said set of values of said extracted predetermined audio feature at different time instances;
- defining at least one frequency band;
- calculating the amount of energy within said frequency band from said frequency analysis; and
- defining said further audio feature as said amount of energy divided by said average value.

6. (previously presented) The method as claimed in claim 5, wherein at least one of the following modulation frequency bands are used in said parameterizing said power spectrum:

- 1-2 Hz;
- 3-15 Hz; and
- 20-150 Hz.

7. (previously presented) The method as claimed in claim 1, wherein said at least one further audio feature is defined as at least one coefficient obtained by performing a discrete cosine transformation on the result of said frequency analysis.

8. (previously presented) A system for classifying at least one audio signal into at least one audio class, the system comprising:

means for analyzing said audio signal to extract at least one predetermined audio feature;

means for performing a frequency analysis on a set of values of said extracted predetermined audio feature at different time instances resulting in a power spectrum of said extracted predetermined audio feature;

means for deriving at least one further audio feature representing a temporal behavior of said extracted predetermined audio feature by parameterizing said power spectrum, wherein parameterizing said power spectrum comprises (a) summarizing a frequency axis of the power spectrum by summing energy within at least one predetermined frequency band and (b) dividing (b)(i) the summed energy within the at least one predetermined frequency band by (b)(ii) an average of subsequent values of said extracted predetermined audio feature to (c) yield a relative modulation depth representing an amount of envelope modulation in the at least one predetermined frequency band; and

means for classifying said audio signal based on said further audio feature.

9. (previously presented) A music system comprising:

means for playing audio data from a medium; and

a system as claimed in claim 8 for classifying said audio data.

10. (previously presented) A multi-media system comprising:
 means for playing audio data from a medium;
 a system as claimed in claim 8 for classifying said audio data;
 means for displaying video data from a further medium;
 means for analyzing said video data; and
 means for combining the results obtained from analyzing said video data with the
results obtained from classifying said audio data.

11-12. (canceled)

13. (previously presented) The method as claimed in claim 1, wherein performing a frequency analysis on a set of values of said extracted predetermined audio feature at different time instances results in a log power spectrum of said extracted predetermined audio feature.